SOIL AND SITE EVALUATION REPORT

PAR FORE PROPERTY CITY OF FITCHBURG, DANE COUNTY, WISCONSIN

November 21, 2007

Prepared For:

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NRC Project # 007-0275-01

David C. Roberts, PSS Soil Investigations, LLC For:

Neil Molstad, CPSS/PSS Environmental Scientist/Soils

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INTRODUCTION

Natural Resources Consulting, Incorporated (NRC) performed an initial site evaluation of the Par Fore Property to determine suitability for stormwater runoff infiltration. The site is located in Sections 1 and 12 T.6N., R.9E., City of Fitchburg, Dane County, Wisconsin.

The purpose of the initial site evaluation is to identify areas that may be suitable for stormwater runoff infiltration. The initial site evaluation includes both screening (Step A) and field verification (Step B) of potential infiltration areas within the Project Area. The State of Wisconsin has regulatory authority to maintain and improve quality of waters within the state including non-agricultural runoff under Chapter 281.16(2) Wisconsin State Statutes. Runoff pollution performance standards are established under NR 151 Wisconsin Administrative Code under regulatory authority by the Wisconsin Department of Natural Resources (WDNR). The performance standards include prohibitions and technical guidance for the potential implementation of stormwater infiltration devices.

The WDNR has additional stormwater management requirements and standards under NR 216 Wisconsin Administrative Code. In addition, the City of Fitchburg and/or Dane County will have additional regulatory authority through stormwater runoff management or infiltration ordinances.

Site Description

The Project Area is located in the south central part of Dane County. This portion of the county contains soils associated with Horicon Member of the Holy Hill Formation of the Green Bay lobe of the Laurentide Ice Sheet deposited during the last part of the Wisconsin Glaciation. The soils in the project area formed mainly in sandy loam or loamy sand till, as well as, associated deposits of sand and gravel deposited by glacial meltwater and clay, silt, and fine sand deposited in glacial lakes.

METHODS

The initial site evaluation was completed using the criteria and methods outlined in the WDNR Conservation Practice Standard 1002, Site Evaluation for Stormwater Infiltration (2002). The standard identifies methods to characterize potential infiltration sites and screen for exclusions and exemptions; establishes requirements for the selection and siting of an infiltration device and infiltration rates; and defines requirements for site evaluation.

The site evaluation procedure consists of four steps for locating the optimal areas for infiltration and for properly sizing infiltration devices. The initial site evaluation includes screening (Step A) and field verification (Step B) of potential infiltration areas with the Project Area.

Step A: Initial Screening

The initial screening identifies potential locations for infiltration devices. The purpose of Step A is to identify exclusions and exemptions and to determine where field work is needed in Step B. To ensure the protection of groundwater, infiltrating runoff from some areas is prohibited. These prohibited areas, referred to as exclusions, are outlined in NR 151.12(5)(c)5. Generally exclusions include some industrial facilities; fueling and vehicle maintenance areas; areas in proximity to karst features (sinkholes, springs, fractured bedrock); areas of limited separation of between the bottom of an infiltration system and seasonal high groundwater or bedrock; areas in proximity to private and community water system wells; areas where contaminants are of a concern; and areas where the soil medium does not contain the specified fines content. Although infiltration may be prohibited within the above areas, this does not mean that it is not necessary to infiltrate water from these areas.

Exempted areas are not required to meet the infiltration requirements and are outlined in NR 151.12(5)(c)6. Exemptions include areas with infiltration rates less than 0.6 inches/hour; parking areas and access roads less than 5,000 square feet for commercial development; redevelopment sites; in-fill development sites less than 5 acres; infiltration areas where soil is frozen; and commercial, industrial, and arterial residential roads. As with the above excluded areas, an area designated as exempt from infiltration standards does not mean that it is not necessary to infiltrate water from these areas.

The initial step in the site evaluation of the development site included a review of the following resources:

- USGS 7.5 minute Wisconsin quadrangle map
- NRCS Soil Survey of Dane County, Wisconsin
- NRCS hydric soils list for Dane County
- Wisconsin Wetland Inventory (WWI) map for the area
- Bureau for Remediation and Redevelopment Tracking System (BRTTS)
- GIS Registry of Closed Remediation Sites
- WGNHS Bulletin 95, Pleistocene Geology of Dane County, Wisconsin

These resources provide information on site characteristics and considerations for locating potential infiltration areas and potential excluded and exempted areas. Site characteristics and considerations include slopes greater than 20%; potential soil infiltration capacities; soil parent material; depth to seasonal high groundwater; presence of endangered species habitat; presence of floodplain or fringe; approximate hydric soil and wetland locations; excluded areas due to potential groundwater contamination; exempted areas from infiltration requirements; and potential impact to adjacent properties. The site information and characteristics are used to determine where field work is required for Step B.

Step B: Field Verification

The field verification process is required to confirm the initial screening information. Data collected in the field include the identification of slopes greater than 20%; soil profile descriptions and parent material; depths to seasonal high water table and bedrock; location of hydric soils and wetlands; and potential excluded and exempted areas.

Soil pits are dug to a depth to determine infiltration capacity characteristics, depth to seasonal high groundwater, and depth to bedrock. Typically, several pits are dug to a depth of 10 to 15 feet and located in areas to adequately characterize subsurface conditions within the Project Area.

Soil profile descriptions are written in accordance with the descriptive procedures, terminology, and interpretations as prescribed by the USDA-NRCS Field Book for Describing and Sampling Soils, v2.0 2002. The descriptions include profile thickness and boundary, Munsell soil color notation, mottles and/or redoximorphic feature color, abundance, size, and contrast; USDA textural class with rock fragment modifiers; soil structure, grade, and shape; soil consistence, root abundance and size; and occurrence to saturated soil, groundwater, bedrock, or disturbed soil.

RESULTS

Table 1 is a list of the soils mapped in the *Soil Survey of Dane County, Wisconsin*, for the Project Area (Figure 2). Any hydric soils and soils with hydric inclusions are shown in bold.

Table 1. Soil Map Units Identified at the Property.

Symbol	SOIL MAP UNIT	CLASSIFICATION	DRAINAGE CLASS	HYDRIC PART
DnB	Dodge silt loam, 2-6%%	Typic Hapludalfs	well drained	not hydric
DnC2	Dodge silt loam, 6-12% eroded	Typic Hapludalfs	well drained	not hydric
MdC2	McHenry silt loam, 6-12% eroded	Typic Hapludalfs	well drained	not hydric
MhC2	Military loam, 6-12% eroded	Typic Hapludalfs	well drained	not hydric
RaA	Radford silt loam, 0-3%	Fluventic Hapludolls	Somewhat poorly	Hydric inclusions
ScB	St Charles silt loam, 2-6%	Typic Hapludalfs	well drained	not hydric
ScC2	St Charles silt loam, 6-12% eroded	Typic Hapludalfs	well drained	not hydric
TrB	Troxel silt loam, 1-4%	Typic Argiudolls	Well & mod well drained	Hydric inclusions
VrB	Virgil silt loam, 1-4%	Udollic Ochraqualfs	Somewhat poorly	Hydric inclusions

The WDNR Bureau for Remediation and Redevelopment Tracking System (BRTTS) and GIS Registry of Closed Remediation Sites did not identify any previous contaminant discharges or spills within the general vicinity of the Project Area.

Field Verification

An on-site field study was conducted on November 16, 2007 by Neil Molstad of NRC and on November 19, 2007 by David C. Roberts of Soil Investigations, LLC. A total of twenty four backhoe pits were evaluated. The soil profile descriptions from these test pits are included in Appendix A. The location of these test pits on the site is provided in Figures 2 and 3. The areas determined to meet soil infiltration standards as per NR 151 are shown on Figure 3.

The Project Area has nearly level to sloping relief. The field investigation focused on corroborating the existing soil survey data indicating a silty mantle underlain with sandy loam till over the entire site.

CONCLUSIONS

NRC performed an initial site evaluation of the Par Fore Property site to determine suitability for stormwater runoff infiltration.

The purpose of the initial site evaluation is to identify areas that may be suitable for stormwater runoff infiltration. The initial site evaluation includes both screening (Step A) and field verification (Step B) of potential infiltration areas within the Project Area. The State of Wisconsin has regulatory authority to maintain and improve quality of waters within the state including non-agricultural runoff under Chapter 281.16(2) Wisconsin State Statutes. Runoff pollution performance standards are established under NR 151 Wisconsin Administrative Code under regulatory authority by the Wisconsin Department of Natural Resources (WDNR). The performance standards include prohibitions and technical guidance for the potential implementation of stormwater infiltration devices.

Seasonal high groundwater limits the suitability for stormwater infiltration within parts of the Project Area. Soil pits 2, 3, 4, 7, 8, 12, & 20 had evidence of seasonal saturation where vertical hydraulic conductivity is restricted. Soil pits 5, 16, 17, 18, 21, 23, & 24 had evidence of saturation believed to be from groundwater. Soil pits 16, 17, 18, 23, & 24 contain hydric soils.

Most of the site is suitable for infiltration of stormwater. However, the glacial sediments are quite variable over short distances. Soil pits 5, 8, 9, 10, 12, 13, 14, 15, & 22 are considered to be underlain with gravelly loamy sand to gravelly fine sandy loam till. Soil pits 3, 4, and 6 are considered to be underlain with sand and gravel outwash. Soil pits 1, 2, 7, 16, 17, 18, 20, and 21 are considered to be underlain with lacustrine deposits, generally strata of silt loam to fine sand. Soil pits 23 and 24 are underlain with hard sandstone bedrock at approximately 10 feet. Soil pit 11 had weathered sandstone at approximately 8 feet.

Soil pits 7, 8, 12, 16, 21, 23, and 24 have 7 to 23 inches of recent alluvium over older soils.

REFERENCES

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Soil Evaluation Report City of Fitchburg, Dane County, WI NRC Project #007-0275-01

REPORT FIGURES

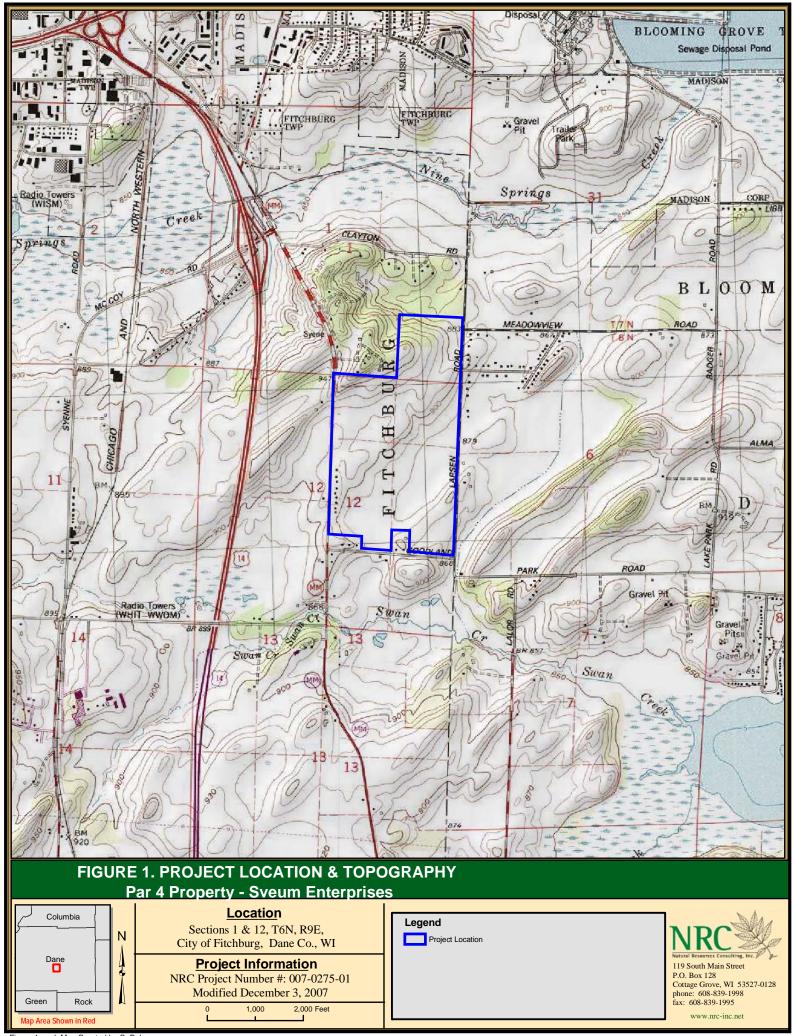
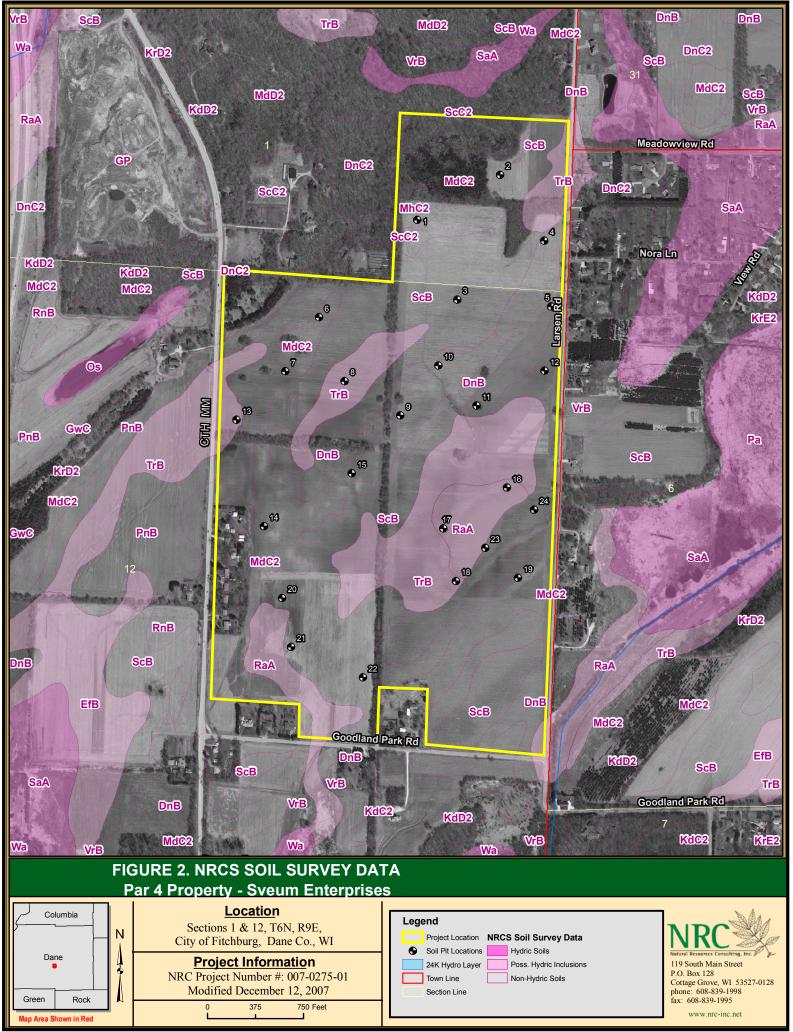


Figure 1.mxd Map Created by C. Pekar Page 1 of 1







Location

Sections 1 & 12, T6N, R9E, City of Fitchburg, Dane Co., WI

Project Information

NRC Project Number #: 007-0275-01 Modified December 12, 2007

375 750 Fee

Legend Proj

Project Location

Soil Pit Locations

Suitable for Infiltration

Limitations to Infiltration

24K Hydro Layer

Natural Resource
119 South I
P.O. Box 1:
Cottage Green

119 South Main Street P.O. Box 128 Cottage Grove, WI 53527-0128 phone: 608-839-1998 fax: 608-839-1995

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APPENDIX A SOIL PROFILE DESCRIPTION DATA SHEETS

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SOIL DESCRIBED BY: Neil Molstad compiled by D. Roberts

Client: Par 4 Property

Project Number: 007-0275-01-002

Date: 11/16/07

Soil Pit #: 1	Soil Map Unit: MhC2 Military Loam, 6 to 129	% slopes, eroded					
Veg/crop:	Classification:						
Slope:	Parent Material: sandy loam till over sandsto	ne bedrock	Hydric Soil:				
Elevation:	Position:	** Field Indic	cator(s):				
-	Drainage Class:	** "Field Indicators	** "Field Indicators of Hydric Soils" - version 6				
	Est. Seasonal						
	Saturation:						
	Observed						
	Groundwater:	*	NR 151 Technical Standard 02/04				

Additional Notes:

design infil rate from Rawls, 1998

No bedrock was observed. The substratum consists of a thin layer of till underlain with stratified loamy sand to silt loam lacustrine deposits.

				Unified			Coarse			Design Infil.
Horizon	Depth	Matrix Color	Texture	class.	Structure	Consistence	Fragments	Redox Features	Boundary	Rate
	(inches)	(moist)			(Gr / Size / Type)		(% & kind)	(abund/size/contrast/color)		(inches / hour)*
Ар	0-10	7.5YR3/2	sil	ml-cl	2fabk	fr			as	0.13
Bt1	10-22	7.5YR4/3	sicl	cl	2msbk	fr	3%, gr		cs	0.04
Bt2	22-27	7.5YR4/4	cl	cl	2msbk	fr	8%, gr		cw	0.03
2Bt1	27-33	7.5YR5/4	sl	sc	2msbk	vfr	7%, gr		as	0.50
2Bt2	33-45	7.5YR6/4	grls	sm	1msbk	vfr	10%, gr		aw	1.63
2C	45-54	10YR6/4	S	sp	sg	lo	4%, gr		aw	3.60
3C	54-120	7 EVDE/2	sil with thin strata of sl & ls	ml & sm	m	fr	5-10% gr w/ 5% cb			0.13 with strata to 1.63

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SOIL DESCRIBED BY: Neil Molstad compiled by D. Roberts

Client: Par 4 Property

Project Number: 007-0275-02

Date: 11/16/07

Soil Pit #: 2	Soil Map Unit: ScC2 St. Charles silt loam	Soil Map Unit: ScC2 St. Charles silt loam, 6 to 12% slopes, eroded					
Veg/crop:	Classification:						
Slope:	Parent Material: silt loam loess overlyin	g stratified silty/loamy outwash	Hydric Soil:				
Elevation:	Position:	** Field Indicator(s):					
	Drainage Class:	** "Field Indicators of Hydric S	Soils" - version 6				
	Est. Seasonal Saturation:						
	Observed Groundwater:	* NR 151	Technical Standard 02/04				

Additional Notes:

design infil rate from Rawls, 1998

No bedrock was observed. The substratum consists of a thin layer of till underlain with stratified loamy sand to silt loam lacustrine deposits. Indicators of wetness at 105"probably associated with permeability, not groundwater.

Horizon	Depth (inches)	Matrix Color (moist)	Texture	Unified class.	Structure (Gr / Size / Type)	Consistence	Coarse Fragments (% & kind)	Redox Features (abund/size/contrast/color)	Boundary	Design Infil. Rate (inches / hour)*
Ар	0-14	7.5YR3/2	sil	ml-cl	2fsbk	fr			as	0.13
Bt1	14-31	7.5YR4/4	cl	cl	2msbk	fr	4%, gr		cs	0.03
2Bt1	31-37	7.5YR5/4	sl	sc	1msbk	vfr	7%, gr		cs	0.50
2Bt2	37-54	7.5YR6/4	sl	sc	1csbk	vfr	11% gr, 2% cb		cw	0.50
2C1	54-105	7.5YR6/4	stratified sil & si	ml	m	fr			cw	0.13
2C2	105-130	7.5YR5/3	sil	ml	m	fr		m3d, 7.5YR4/6		0.13

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SOIL DESCRIBED BY: Neil Molstad compiled by D. Roberts

Client: Par 4 Property

Project Number: 007-0275-01-002

Date: 11/16/07

Soil Pit #: 3	Soil Map Unit: ScB, St. Charles silt lo	am, 0 to 6% slopes
Veg/crop:	Classification:	
Slope:	Parent Material: sandy loam till	Hydric Soil:
Elevation:	Position:	** Field Indicator(s):
	Drainage Class:	** "Field Indicators of Hydric Soils" - version 6
	Est. Seasonal	
	Saturation:	
	Observed	
	Groundwater:	* NR 151 Technical Standard 02/04

Additional Notes:

design infil rate from Rawls, 1998

This soil is underlain with gravelly sand at 80". Evidence of saturation between 21 & 67". Saturation is related to restricted vertical hydrological conductivity and not ground water.

Horizon	Depth (inches)	Matrix Color (moist)	Texture	Unified class.	Structure (Gr / Size / Type)	Consistence	Coarse Fragments (% & kind)	Redox Features (abund/size/contrast/color)	Boundary	Design Infil. Rate (inches / hour)*
Ар	0-14	7.5YR3/1	sil	ml-cl	2fsbk	fr			as	0.13
A2	14-21	7.5YR4/2	sil	cl	2fsbk	fr			cs	0.13
Bt1	21-33	7.5YR4/3	sil	cl	2msbk	fr		m2f 7.5YT4/4 & m2d 7.5YR5/2	cs	0.13
Bt2	33-53	7.5YR4/4	sicl	cl	1csbk	fr		c2d7.5YR4/6 & c2d7.5YR5/2	gs	0.04
С	53-67	7.5YR4/4	sicl	cl	m	fr		m2d7.5YR5/2	aw	0.04
2C	67-80	7.5YR5/3	grls	sm	m	vfr	12% gr, 5% cb		cs	1.63
3C	80-130	7.5YR6/4	grs	sp	sg	I	15% gr, 5% cb			3.60

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SOIL DESCRIBED BY: Neil Molstad compiled by D. Roberts

Client: Par 4 Property

Project Number: 007-0275-01-002

Date: 11/16/07

Soil Pit #: 4	Soil Map Unit: DnC2, Dodge silt loar	Soil Map Unit: DnC2, Dodge silt loam, 6 to 12% slopes, eroded					
Veg/crop:	Classification:						
Slope:	Parent Material: sandy loam till.	Hydric Soil:					
Elevation:	Position:	** Field Indicator(s):					
	Drainage Class:	** "Field Indicators of Hydric Soils" - version 6					
	Est. Seasonal Saturation:						
	Observed						
	Groundwater:	* NR 151 Technical Standard 02/04					

Additional Notes:

design infil rate from Rawls, 1998

This soil is underlain with outwash sand and gravel at 50". Evidence of saturation at 33" because of restricted permeability.

Horizon	Depth (inches)	Matrix Color (moist)	Texture	Unified class.	Structure (Gr / Size / Type)	Consistence	Coarse Fragments (% & kind)	Redox Features (abund/size/contrast/color)	Boundary	Design Infil. Rate (inches / hour)*
Ар	0-14	7.5YR3/2	sil	ml-cl	2mabk	fr			as	0.13
Bt1	14-33	7.5YR4/3	sicl	cl	2msbk	fr			cs	0.04
Bt2	33-43	7.5YR4/3	sicl	cl	2csbk	fr		c2d7.5YR4/6 & c2d7.5YR5/2	cs	0.04
Bt3	43-50	7.5YR4/4	I	cl	1csbk	fr			aw	0.24
2CB	50-61	10YR6/4	S	sp	1csbk	lo			gs	3.60
2C1	61-82	10YR6/4	S	sp	sg	lo	5% bd		cs	3.60
2C2	82-130	7.5YR6/4	vgr ls & vgr s	sp	sg	lo	15% gr, 10% cb, 10% bd			3.60

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SOIL DESCRIBED BY: Neil Molstad compiled by D. Roberts

Client: Par 4 Property

Project Number: 007-0275-01-002

Date: 11/16/07

Soil Pit #: 5	Soil Map Unit: DnB Dodgesilt loam, 0	0 to 6% slopes
Veg/crop:	Classification:	
Slope:	Parent Material: sandy loam till	Hydric Soil:
Elevation:	Position:	** Field Indicator(s):
	Drainage Class:	** "Field Indicators of Hydric Soils" - version 6
	Est. Seasonal	
	Saturation:	
	Observed	
	Groundwater:	* NR 151 Technical Standard 02/04

Additional Notes:

design infil rate from Rawls, 1998

This soil is underlain with strata of loam to sand at 53". Evidence of saturation from 12 to 23". Saturation is related to restricted vertical hydrological conductivity and not ground water in this horizon. Redox features in the 80 to 140" horizon may be related to groundwater.

Horizon	Depth (inches)	Matrix Color (moist)	Texture	Unified class.	Structure (Gr / Size / Type)	Consistence	Coarse Fragments (% & kind)	Redox Features (abund/size/contrast/color)	Boundary	Design Infil. Rate (inches / hour)*
Ар	0-12	7.5YR3/2	sil	ml-cl	2fsbk	fi			as	0.13
Bt1	12-23	7.5YR4/3	sicl	cl	2msbk	fr	10/ ar	c2d7.5YR5/2 & c1d7.5YR4/6	cs	0.04
Bt2	23-32	5YR4/3	cl	cl	2csbk	fr	8% gr, 4% cb		cs	0.03
Bt3	32-34	5YR3/4	cl	cl	1csbk	fr	5% gr, 6% cb		aw	0.03
2CB	34-53	7.5YR5/4	grls	sm	1csbk	lo	15%gr, 10% cb		gs	1.63
2C1	53-80	7.5YR5/3 & 7.5YR6/4	strata of cby Is to	sm to cl	sg	lo	10% gr, 15% cb		cs	1.63 to 0.24
2C2	80-140	7.5YR5/4 & 7.5YR6/4	strata of sl to s	sm to sp	sg	lo	10% gr, 15% cb, 5% bd	c1d 7.5YR4/6		0.50 to 3.60

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SOIL DESCRIBED BY: David Roberts, PSS 117

Client: Par 4 Property

Project Number: 007-0275-01-002

Date: 11/19/07

Soil Pit #: 6	Soil Map Unit: MdC2, McHenry silt lo	Soil Map Unit: MdC2, McHenry silt loam, 6 to 12% slopes, eroded					
Veg/crop:	Classification:						
Slope:	Parent Material: sandy loam till	Hydric S	oil:				
Elevation:	Position:	** Field Indicator(s):	** Field Indicator(s):				
	Drainage Class:	** "Field Indicators of Hydric Soils" - version 6					
	Est. Seasonal Saturation:						
	Observed Groundwater:	* NR 151 Technical Stan	dard 02/04				
A J. P.C I. N C		destant of the Control De	L 4000				

Additional Notes:

This soil is underlain with outwash sand and gravelly sand at 73". Severely eroded.

Horizon	Depth (inches)	Matrix Color (moist)	Texture	Unified class.	Structure (Gr / Size / Type)	Consistence	Coarse Fragments (% & kind)	Redox Features (abund/size/contrast/color)	Boundary	Design Infil. Rate (inches / hour)*
Ар	0-10	10YR3/3	grsl	sm	2msbk	fr	15% gr, 5% cb		as	0.50
Bw	10-25	7.5YR4/4	grfsl	sm	1msbk	fr	15% gr, 5% cb		gw	0.50
С	25-73	10YR5/6	grfsl	sm	m	fr	15% gr, 5% cb		gw	0.50
2C	73-145	10VDE//	strata of s and grs	sp	sg	lo	15% gr, 5% cb			3.60

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SOIL DESCRIBED BY: David Roberts, PSS 117

Client: Par 4 Property

Project Number: 007-0275-01-002

Date: 11/19/07

Soil Pit #: 7	Soil Map Unit: ScB, St Charles silt loa	Soil Map Unit: ScB, St Charles silt loam, 2 to 6% slopes						
Veg/crop:	Classification:							
Slope:	Parent Material: sandy loam till	Hydric Soil:						
Veg/crop:	Position:	** Field Indicator(s):						
	Drainage Class:	** "Field Indicators of Hydric Soils" - version 6						
	Est. Seasonal Saturation:							
		 						
	Observed Groundwater:	* NR 151 Technical Standard 02/04						

Additional Notes:

design infil rate from Rawls, 1998

This soil is underlain with fine sand lacustrine deposits at 156". Indicators of wetness are related to permeability, not groundwater.

Horizon	Depth (inches)	Matrix Color (moist)	Texture	Unified class.	Structure (Gr / Size / Type)	Consistence	Coarse Fragments (% & kind)	Redox Features (abund/size/contrast/color)	Boundary	Design Infil. Rate (inches / hour)*
Ар	0-12	10YR2/2	sil	ml	2msbk	fr			as	0.13
Ab	12-31	10YR2/1	sil	ml	2msbk	fr			as	0.13
Bt1	31-46	10YR5/4	sil	cl	2mpr	fr		f2d 7.5YR4/6	cw	0.13
Bt2	46-62	10YR5/3	sicl	cl	2cosbk	fi		c2d 7.5YR5/6	cw	0.04
C1	62-115	10YR5/3	sil	cl	m	fr		c2p 5YR4/6 & f2d 2.5Y5/2	ac	0.13
C2	115-121	10YR3/3	I	sc	m	fr	10% gr		ac	0.24
2C	121-180	10YR5/8	fs	sp	sg	lo				3.60

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SOIL DESCRIBED BY: David Roberts, PSS 117

Client: Par 4 Property

Project Number: 007-0275-01-002

Date: 11/19/07

Soil Pit #: 8	Soil Map Unit: TrB, Troxel Silt loam, 2 to 69	% slopes				
Veg/crop:	Classification:					
Slope:	Parent Material: silty alluvium	Hydric Soil:				
Elevation:	Position:	** Field Indicator(s):				
	Drainage Class:	** "Field Indicators of Hydric Soils" - version 6				
	Est. Seasonal Saturation:					
	Observed Groundwater:	* NR 151 Technical Standard 02/04				
Additional Notes:		design infil rate from Rawls, 1998				

This soil is underlain with fine sandy loam till at 158". Indicators of wetness are related to permeability, not groundwater.

Horizon	Depth (inches)	Matrix Color (moist)	Texture	Unified class.	Structure (Gr / Size / Type)	Consistence	Coarse Fragments (% & kind)	Redox Features (abund/size/contrast/color)	Boundary	Design Infil. Rate (inches / hour)*
Ар	0-11	10YR2/2	sil	ml	2m&fsbk	fr			as	0.13
Ab11	11-16	10YR2/1	sil	ml	2mgr	fr			as	0.13
Ab12	16-24	10YR3/3	sil	cl	2msbk	fr			cw	0.13
Bt1	24-34	7.5YR3/4	sil	cl	2m&copr	fr		c2d 5YR4/6	cw	0.13
Bt2	34-46	7.5YR3/4	sicl	cl	2m&copr	fi		c2p 5YR4/6 & f2d 5Y5/2	aw	0.04
2C	46-105	7.5YR4/4	sicl	cl	m	fi		f1p 7.5YR5/8 &f2d 5Y5/1	aw	0.04
3C	105-158	10YR6/4	s	sp	sg	lo			aw	3.60
4C	158-180	7.5YR4/4	fsl	sm	m	fr	5% gr			

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SOIL DESCRIBED BY: David Roberts, PSS 117

Client: Par 4 Property

Project Number: 007-0275-01-002

Date: 11/19/07

Soil Pit #: 9	Soil Map Unit: MdC2, Mchenry silt loa	Soil Map Unit: MdC2, Mchenry silt loam, 6 to 12% slopes eroded						
Veg/crop:	Classification:							
Slope:	Parent Material: sandy loam till	Hydric Soil:						
Elevation:	Position:	** Field Indicator(s):						
	Drainage Class: Est. Seasonal Saturation:	** "Field Indicators of Hydric Soils" - version 6						
	Observed Groundwater:	* NR 151 Technical Standard 02/04						
Additional Notes:		design infil rate from Rawls, 1998						

Horizon	Depth (inches)	Matrix Color (moist)	Texture	Unified class.	Structure (Gr / Size / Type)	Consistence	Coarse Fragments (% & kind)	Redox Features (abund/size/contrast/color)	Boundary	Design Infil. Rate (inches / hour)*
Ар	0-12	10YR3/2	sil	ml	2mpl	fr			as	0.13
A12	12-22	10YR3/3	sil	cl	2msbk	fr			aw	0.13
Bt1	22-34	7.5YR4/4	sil	cl	2cosbk	fr			cw	0.13
Bt2	34-60	7.5YR3/4	sicl	cl	2cosbk	fi			cw	0.04
2C	60-132	10YR5/6	grfsl	sm	m	fr				0.50

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SOIL DESCRIBED BY: Neil Molstad compiled by D. Roberts

Client: Par 4 Property

Project Number: 007-0275-01-002

Date: 11/16/07

Soil Pit #: 10	Soil Map Unit: MdC2 McHenry silt loa	Soil Map Unit: MdC2 McHenry silt loam, 6 to 12% slopes, eroded						
Veg/crop:	Classification:							
Slope:	Parent Material: sandy loam till	Hydric Soil:						
Elevation:	Position:	** Field Indicator(s):						
	Drainage Class: Est. Seasonal Saturation:	** "Field Indicators of Hydric Soils" - version 6						
	Observed Groundwater:	* NR 151 Technical Standard 02/04						
Additional Notes:		design infil rate from Rawls, 1998						

Horizon	Depth (inches)	Matrix Color (moist)	Texture	Unified class.	Structure (Gr / Size / Type)	Consistence	Coarse Fragments (% & kind)	Redox Features (abund/size/contrast/color)	Boundary	Design Infil. Rate (inches / hour)*	
Ар	0-10	7.5YR3/2	grsl	sm	2msbk	fr			as	0.50	
C1	10-33	7.5YR6/4	strata of ls & s	sm & sp	sg	lo	5% gr & 5% cb		gs	1.63 to 3.60	
C2	33-130	7.5YR6/3	ls	sm	sg	lo	7% gr & 5% cb			1.63	

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Client: Par 4 Property

Project Number: 007-0275-01-002

Date: 11/16/07

Soil Pit #: 11	Soil Map Unit: ScB, St Charles silt loa	Soil Map Unit: ScB, St Charles silt loam, 2 to 6% slopes						
Veg/crop:	Classification:							
Slope:	Parent Material: sandy loam till		Hydric Soil:					
Elevation:	Position:	** Field	** Field Indicator(s):					
	Drainage Class:	** "Field Inc	** "Field Indicators of Hydric Soils" - version 6					
	Est. Seasonal							
	Saturation:							
	Observed							
	Groundwater:		* NR 151 Technical Standard 02/04					
A 1 1241 1 1 1 1	-	-						

Additional Notes:

This soil is underlain with weathered sandstone bedrock at 95".

Horizon	Depth (inches)	Matrix Color (moist)	Texture	Unified class.	Structure (Gr / Size / Type)	Consistence	Coarse Fragments (% & kind)	Redox Features (abund/size/contrast/color)	Boundary	Design Infil. Rate (inches / hour)*
Ар	0-12	7.5YR3/1	sil	ml	2fabk	fr			as	0.13
Bt1	12-19	7.5YR4/3	sil	cl	2cosbk	fr			cs	0.13
Bt2	19-31	7.5YR4/3	sil	cl	2msbk	fr			cs	0.13
Bt3	31-42	7.5YR4/3	cl	cl	1msbk	fr	5% gr & 5% cb		aw	0.03
2C	42-95	7.5YR6/4 & 7.5YR7/4	strata of Is & s	sm & sp	m	lo	5% gr		aw	1.63 to 3.60
2Cr	95-130	7.5YR8/7	weathered sandstone							

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SOIL DESCRIBED BY: Neil Molstad compiled by D. Roberts

Client: Par 4 Property

Project Number: 007-0275-01-002

Date: 11/16/07

Soil Pit #: 12	Soil Map Unit: VrB, Virgil silt loam, 1	Soil Map Unit: VrB, Virgil silt loam, 1 to 4% slopes					
Veg/crop:	Classification:						
Slope:	Parent Material: sandy loam till	Hydric Soil:					
Elevation:	Position:	** Field Indicator(s):					
	Drainage Class:	** "Field Indicators of Hydric Soils" - version 6					
	Est. Seasonal Saturation:						
	Observed Groundwater:	* NR 151 Technical Standard 02/04					

Additional Notes:

Evidence of saturation at 32 inches. May be related to permeability and not groundwater.

Horizon	Depth (inches)	Matrix Color (moist)	Texture	Unified class.	Structure (Gr / Size / Type)	Consistence	Coarse Fragments (% & kind)	Redox Features (abund/size/contrast/color)	Boundary	Design Infil. Rate (inches / hour)*
Ар	0-11	10YR2/2	sil	ml	2msbk	fr			cs	0.13
A12	11-17	10YR3/1	sil	cl	2fpl	fr			cs	0.13
Ab	17-28	10YR2/1	sil	cl	2mgr	fr			cs	0.13
A2	28-32	10YR4/2	sil	cl	2msbk	fr			cs	0.13
Bt1	32-41	10YR5/3	sil	cl	2msbk	fr		c1d 10YR4/6	cw	0.13
Bt2	41-65	10YR4/3	sicl	cl	1cosbk	fi		m1d 10YR4/6 & m2d 10YR5/2	gs	0.04
С	65-86	10YR4/3 & 10YR5/1	sicl	cl	m	fi		m2d 10YR4/6	as	0.04
2C	85-150	7.5YR5/4	grsl	sm	m	fr				0.50

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SOIL DESCRIBED BY: David Roberts, PSS 117

Client: Par 4 Property

Project Number: 007-0275-01-002

Date: 11/19/07

Soil Pit #: 13	Soil Map Unit: TrB, Troxel silt loam, 2	Soil Map Unit: TrB, Troxel silt loam, 2 to 6% slopes					
Veg/crop:	Classification:						
Slope:	Parent Material: silty alluvium	Hydric Soil:					
Elevation:	Position:	** Field Indicator(s):					
	Drainage Class:	** "Field Indicators of Hydric Soils" - version 6					
	Est. Seasonal Saturation:						
	Observed Groundwater:	* NR 151 Technical Standard 02/04					

Additional Notes:

design infil rate from Rawls, 1998

This soil has strata of silt loam, silt, and very fine sand lacustrine strata between 65 & 120". And gravelly fine sandy loam till deposits from 120 to 168".

Horizon	Depth (inches)	Matrix Color (moist)	Texture	Unified class.	Structure (Gr / Size / Type)	Consistence	Coarse Fragments (% & kind)	Redox Features (abund/size/contrast/color)	Boundary	Design Infil. Rate (inches / hour)*
Ар	0-12	10YR2/2	sil	ml	2msbk	fr			as	0.13
Bt1	12-39	10YR4/4	sil	cl	2msbk	fr			as	0.13
Bt2	39-65	10YR4/4	sicl	cl	2cosbk	fi			cw	0.04
2C	65-120	40VDE/4	sil with strata of si and vfs	ml to sp	m	fr		c2d 7.5YR5/6	cw	0.13 to 3.60
3C	120-168	10YR5/4	grfsl	sm	m	fr				0.50

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SOIL DESCRIBED BY: David Roberts, PSS 117

Client: Par 4 Property

Project Number: 007-0275-01-002

Date: 11/19/07

Soil Pit #: 14	Soil Map Unit: MdC2, McHenry silt loam, 6 to 12% slopes, eroded					
Veg/crop:	Classification:					
Slope:	Parent Material: sandy loam till	Hydric Soil:				
Elevation:	Position:	** Field Indicator(s):				
	Drainage Class:	** "Field Indicators of Hydric Soils" - version 6				
	Est. Seasonal Saturation:					
	Observed Groundwater:	* NR 151 Technical Standard 02/04				
Additional Notes:	•	design infil rate from Rawls 1998				

Horizon	Depth (inches)	Matrix Color (moist)	Texture	Unified class.	Structure (Gr / Size / Type)	Consistence	Coarse Fragments (% & kind)	Redox Features (abund/size/contrast/color)	Boundary	Design Infil. Rate (inches / hour)*
Ар	0-12	10YR2/2	sil	ml	2msbk	fr			as	0.13
Bt1	12-28	10YR3/4	sil	cl	2msbk	fr			cw	0.13
Bt2	28-39	10YR4/4	sil	cl	2msbk	fr			cw	0.13
Bt3	39-51	10YR4/4	sicl	cl	2cosbk	fi			cw	0.04
2C	51-144	10YR5/6	grfsl	sm	m	f	15% gr & 5%cb			0.50

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SOIL DESCRIBED BY: David Roberts, PSS 117

Client: Par 4 Property

Project Number: 007-0275-01-002

Date: 11/19/07

Soil Pit #: 15	Soil Map Unit: MdC2, McHenry silt loam, 6 to 12% slopes, eroded					
Veg/crop:	Classification:					
Slope:	Parent Material: sandy loam till	Hydric Soil:				
Elevation:	Position:	** Field Indicator(s):				
	Drainage Class: Est. Seasonal Saturation:	** "Field Indicators of Hydric Soils" - version 6				
	Observed Groundwater:	* NR 151 Technical Standard 02/04				
Additional Notes:		design infil rate from Rawls, 1998				

Horizon	Depth (inches)	Matrix Color (moist)	Texture	Unified class.	Structure (Gr / Size / Type)	Consistence	Coarse Fragments (% & kind)	Redox Features (abund/size/contrast/color)	Boundary	Design Infil. Rate (inches / hour)*
Ар	0-12	10YR3/2	sil	ml	2msbk	fr			as	0.13
Bw	12-19	7.5YR4/4	sl	sm	2msbk	vfr	10% gr		cw	0.50
ВС	19-42	10YR5/6	grsl	sm	1msbk	vfr	15% gr & 5%cb		cw	0.50
С	42-144	10YR5/4	grsl	sm	m	fr	15% gr & 5%cb		cw	0.50

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SOIL DESCRIBED BY: David Roberts, PSS 117

Client: Par 4 Property

Project Number: 007-0275-01-002

Date: 11/19/07

Soil Pit #: 16	Soil Map Unit: RaA, Radford silt loam, 0 to 3	Soil Map Unit: RaA, Radford silt loam, 0 to 3% slopes					
Veg/crop:	Classification:						
Slope:	Parent Material: silty alluvium	Hydric Soil: yes					
Elevation:	Position:	** Field Indicator(s): F6,					
	Drainage Class:	** "Field Indicators of Hydric Soils" - version 6					
	Est. Seasonal Saturation: <12"						
	Observed Groundwater:	* NR 151 Technical Standard 02/04					

Additional Notes:

Hydric soil. Original surface buried with approximately 18" of post settlement alluvium.

Horizon	Depth (inches)	Matrix Color (moist)	Texture	Unified class.	Structure (Gr / Size / Type)	Consistence	Coarse Fragments (% & kind)	Redox Features (abund/size/contrast/color)	Boundary	Design Infil. Rate (inches / hour)*
Ар	0-18	10YR3/2	sil	ml	2msbk	fr		c2p 5YR4/6	as	0.13
Ab1	18-33	10YR2/2	sil	ml	2msbk	fr			cw	0.13
Ab2	33-44	10YR3/3	sil	cl	2msbk	fr			cw	0.13
Btg	44-80	2.5Y5/2	sicl	cl	2msbk	fi		c2p 7.5YR4/6	cw	0.04
2C	80-156	10YR5/3	strata of sil & fs	ml & sp	m	fr		c2d 7.5YR4/6		0.15 to 3.60

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Client: Par 4 Property

Project Number: 007-0275-01-002

Date: 11/16/07

Soil Pit #: 17	Soil Map Unit: RaA, Radford silt loam 0 to	o 3% slopes	
Veg/crop:	Classification:		
Slope:	Parent Material: silty alluvium	Hydric Soil: yes	
Elevation:	Position:	** Field Indicator(s): A12	
	Drainage Class:	** "Field Indicators of Hydric Soils" - version 6	
	Est. Seasonal		
	Saturation: <12"		
	Observed		
	Groundwater: 85"	* NR 151 Technical Standard 02/04	

Additional Notes:

Horizon	Depth (inches)	Matrix Color (moist)	Texture	Unified class.	Structure (Gr / Size / Type)	Consistence	Coarse Fragments (% & kind)	Redox Features (abund/size/contrast/color)	Boundary	Design Infil. Rate (inches / hour)*
Ар	0-16	10YR3/1	sil	ml	2mgr	fr			as	0.13
Btg1	16-24	10YR4/2	sil	cl	2fsbk	fr		c1p 10YR4/6	cs	0.13
Btg2	24-37	2.5Y6/2	sicl	cl	2msbk	fr		c1p 7.5YR4/6	cw	0.04
Btg3	37-50	5Y6/1	sicl	cl	1cosbk	fr		c1p 7.5YR4/6	as	0.04
С	50-75	5Y6/2	sicl	cl	m	fi		m1d 7.5YR4/6	aw	0.04
2C	75-138	7.5YR5/2	vfsl	sm	m	fr		m2p 7.5YR4/6	aw	0.50

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Client: Par 4 Property

Project Number: 007-0275-01-002

Date: 11/16/07

Soil Pit #: 18	Soil Map Unit: TrB, Troxel silt loam, 1 to 4% slopes	
Veg/crop:	Classification:	
Slope:	Parent Material: silty alluvium	Hydric Soil: yes

Elevation: ** Field Indicator(s): A12

Drainage Class: Est. Seasonal

Saturation: <12"

Observed

Groundwater: 96""

** "Field Indicators of Hydric Soils" - version 6

* NR 151 Technical Standard 02/04 design infil rate from Rawls, 1998

Additional Notes:

Horizon	Depth (inches)	Matrix Color (moist)	Texture	Unified class.	Structure (Gr / Size / Type)	Consistence	Coarse Fragments (% & kind)	Redox Features (abund/size/contrast/color)	Boundary	Design Infil. Rate (inches / hour)*
Ар	0-14	10YR3/1	sil	ml	2msbk	fr			as	0.13
Btg1	14-22	10YR4/2	sicl	cl	2msbk	fr		c1d 10YR4/4	as	0.04
Btg2	22-29	2.5Y5/2	sicl	cl	1msbk	fi		c1p 10YR5/6	cs	0.04
Btg3	29-43	2.5Y5/2	sicl	cl	1cosbk	fi		m2p 7.5YR4/6	cs	0.04
С	43-71	5Y6/1	sicl	cl	m	fi		m1d 7.5YR4/6	cs	0.04
2C	71-132	7 5/05/0	sil with strata of sil, sl, and Is	ml	m	fr		m2p 7.5YR4/6	aw	0.13

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SOIL DESCRIBED BY: Neil Molstad compiled by D. Roberts

Client: Par 4 Property

Project Number: 007-0275-01-002

Date: 11/16/07

Soil Pit #: 19	Soil Map Unit: MdC2, McHenry silt loam, 6 to 12% slopes, eroded					
Veg/crop:	Classification:					
Slope:	Parent Material: sandy loam till	Hydric Soil:				
Elevation:	Position:	** Field Indicator(s):				
	Drainage Class: Est. Seasonal Saturation:	** "Field Indicators of Hydric Soils" - version 6				
	Observed Groundwater:	* NR 151 Technical Standard 02/04				
Additional Notes:		design infil rate from Rawls, 1998				

Horizon	Depth (inches)	Matrix Color (moist)	Texture	Unified class.	Structure (Gr / Size / Type)	Consistence	Coarse Fragments (% & kind)	Redox Features (abund/size/contrast/color)	Boundary	Design Infil. Rate (inches / hour)*
Ар	0-7	7.5YR3/2	grsl	sm	2fsbk	fr	15% gr & 5% cb		as	0.50
Bt	7-13	7.5YR4/6	sl	sm	2msbk	l fr	7% gr & 3% cb		cs	0.50
2C1	13-22	7.5YR5/6	ls	sm	1msbk	vfr	8% gr		aw	1.63
2C2	22-41	7.5YR5/4	S	sp	sg	I In	8% gr & 5% cb		cw	3.60
2C3	41-120	5Y6/1	ls	sm	m		8% gr & 5% cb			1.63

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SOIL DESCRIBED BY: David Roberts, PSS 117

Client: Par 4 Property

Project Number: 007-0275-01-002

Date: 11/19/07

Soil Pit #: 20	Soil Map Unit: ScB, St Charles silt loam,	Soil Map Unit: ScB, St Charles silt loam, 2 to 6% slopes						
Veg/crop:	Classification:							
Slope:	Parent Material: sandy loam till	Hydric Soil:						
Elevation:	Position:	** Field Indicator(s):						
	Drainage Class:	** "Field Indicators of Hydric Soils" - version 6						
	Est. Seasonal	7						
	Saturation: 36"							
	Observed	7						
	Groundwater:	* NR 151 Technical Standard 02/04						

Additional Notes:

This soil formed in silty lacustrine deposits.

Horizon	Depth (inches)	Matrix Color (moist)	Texture	Unified class.	Structure (Gr / Size / Type)	Consistence	Coarse Fragments (% & kind)	Redox Features (abund/size/contrast/color)	Boundary	Design Infil. Rate (inches / hour)*
Ар	0-15	10YR2/1	sil	ml	2msbk	fr			as	0.13
A12	15-21	10YR2/2	sil	cl	2fgr	fr			cw	0.13
Bt1	15-36	10Y4/4	sil	cl	2msbk	fr			cw	0.13
Bt2	36-125	10YR5/2	sicl	cl	2cosbk	fi		c2p 7.5YR5/8 & c2d 2.5Y5/1	cw	0.04
С	125-179	10YR5/4	sil	ml	m	fr				0.13

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SOIL DESCRIBED BY: David Roberts, PSS 117

Client: Par 4 Property

Project Number: 007-0275-01-002

Date: 11/19/07

Soil Pit #: 21	Soil Map Unit: ScB, St Charles silt loam	Soil Map Unit: ScB, St Charles silt loam, 2 to 6% slopes						
Veg/crop:	Classification:							
Slope:	Parent Material: sandy loam till	Hydric Soil:						
Elevation:	Position:	** Field Indicator(s):						
	Drainage Class:	** "Field Indicators of Hydric Soils" - version 6						
	Est. Seasonal							
	Saturation: 52"							
	Observed							
	Groundwater:	* NR 151 Technical Standard 02/04						

Additional Notes:

The original soil is buried with 23" of post settlement alluvium.

Horizon	Depth (inches)	Matrix Color (moist)	Texture	Unified class.	Structure (Gr / Size / Type)	Consistence	Coarse Fragments (% & kind)	Redox Features (abund/size/contrast/color)	Boundary	Design Infil. Rate (inches / hour)*
Ар	0-23	10YR2/2	sil	ml	2msbk	fr			as	0.13
Ab1	23-35	10YR2/1	sil	ml	2fgr	fr			cs	0.13
Ab2	35-41	N2.5	sil	cl	2msbk	fr			cw	0.13
Ab3	41-52	10YR3/1	sil	cl	2msbk	fr			cw	0.13
С	52-198	5Y5/1	sic	ch	m	fi		c2p 7.5YR5/8		0.07

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SOIL DESCRIBED BY: David Roberts, PSS 117

Client: Par 4 Property

Project Number: 007-0275-01-002

Date: 11/19/07

Soil Pit #: 22	Soil Map Unit: ScB, St Charles silt loa	m, 2 to 6% slopes				
Veg/crop:	Classification:					
Slope:	Parent Material: sandy loam till		Hydric Soil:			
Elevation:	Position:	** Field Indi	** Field Indicator(s):			
	Drainage Class:	** "Field Indicator	rs of Hydric Soils" - version 6			
	Est. Seasonal					
	Saturation:					
	Observed					
	Groundwater:		* NR 151 Technical Standard 02/04			

Additional Notes:

Added soil pit east of n/s treeline. 43°00'25"N 89°22'17"W

Horizon	Depth (inches)	Matrix Color (moist)	Texture	Unified class.	Structure (Gr / Size / Type)	Consistence	Coarse Fragments (% & kind)	Redox Features (abund/size/contrast/color)	Boundary	Design Infil. Rate (inches / hour)*
Ар	0-9	10YR2/2	sil	ml	2msbk	fr			as	0.13
Bt1	9-31	7.5YR3/4	sil	cl	2msbk	fr			cs	0.13
Bt2	31-46	7.5YR3/4	sil	cl	2cosbk	fr			cw	0.13
2C	46-160	10YR5/6	grsl	sm	m	fr	15% gr & 10% cb		cw	0.50

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SOIL DESCRIBED BY: David Roberts, PSS 117

Client: Par 4 Property

Project Number: 007-0275-01-002

Date: 11/19/07

Soil Pit #: 23	Soil Map Unit: RaA, Radford silt loam, 0 to 3	% slopes				
Veg/crop:	Classification:					
Slope:	Parent Material: silty alluvium	yes				
Elevation:	Position:	** Field Indicator(s): A12				
	Drainage Class:	** "Field Indicators of Hydric Soils" - version 6				
	Est. Seasonal Saturation: <12"					
	Observed Groundwater:	* NR 151 Technical Standard 02/04				

Additional Notes:

design infil rate from Rawls, 1998

added pit in the delineated wetland area; 43°00'35"N, 89°22'04"W. Hard sandstone bedrock at 124" Backhoe operator says that topsoil was removed from this area about 10 years ago. Area is buried with approximately 12" of alluvium.

				Unified			Coarse			Design Infil.
Horizon	Depth	Matrix Color	Texture	class.	Structure	Consistence	_	Redox Features	Boundary	Rate
	(inches)	(moist)			(Gr / Size / Type)		(% & kind)	(abund/size/contrast/color)		(inches / hour)*
Ар	0-12	10YR2/2	sil	ml	2msbk	fr			as	0.13
Ab	12-17	10YR2/1	sil	cl	2msbk	fr			cs	0.13
Btg	17-33	2.5Y4/2	sil	cl	2msbk	fr		c2p 7.5YR5/6	cw	0.13
Cg	33-124	2.5Y5/2	sicl	cl	m	fi		m2p 7.5YR5/6	cw	0.04
R			sandstone							

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SOIL DESCRIBED BY: David Roberts, PSS 117

Client: Par 4 Property

Project Number: 007-0275-01-002

Date: 11/19/07

Soil Pit #: 24	Soil Map Unit: RaA, Radford silt loam, 0 to	Unit: RaA, Radford silt loam, 0 to 3% slopes					
Veg/crop:	Classification:						
Slope:	Parent Material: silty alluvium	yes					
Elevation:	Position:	** Field Indicator(s): A11					
	Drainage Class:	** "Field Indicators of Hydric Soils" - version 6					
	Est. Seasonal						
	Saturation: <12"						
	Observed						
	Groundwater: 55"	* NR 151 Technical Standard 02/04					

Additional Notes:

design infil rate from Rawls, 1998

added pit in the delineated wetland area; 43°00'38"N, 89°21'59"W. Hard sandstone bedrock at 104" Backhoe operator says that topsoil was removed from this area about 10 years ago. Area is buried with approximately 7" of alluvium.

							ı			
Horizon	Depth (inches)	Matrix Color (moist)	Texture	Unified class.	Structure (Gr / Size / Type)	Consistence	Coarse Fragments (% & kind)	Redox Features (abund/size/contrast/color)	Boundary	Design Infil. Rate (inches / hour)*
Ар	0-7	10YR2/2	sil	ml	2msbk	fr			as	0.13
Ab	7-11	10YR2/1	sil	cl	2msbk	fr			cs	0.13
Btg	11-32	2.5Y4/2	sil	cl	1cosbk	fi		c2p 7.5YR5/6	cw	0.13
С	32-55	5Y5/2	sicl	cl	m	fi		m2p 7.5YR5/6	cw	0.04
2C	55-67	10YR5/4	sl	sm	m	fr		m2p 7.5YR5/8	cw	0.50
3C	67-104	10YR6/4	lfs	sm	m	vfr		m2p 7.5YR5/6		1.63
Cr			sandstone							